

ACRONYMS, ABBREVIATIONS, AND USE OF SCIENTIFIC NOTATION

Acronyms

| | |
|--------|--|
| AAQS | ambient air quality standard |
| AEA | Atomic Energy Act of 1954 |
| ALARA | as low as reasonably achievable |
| CEQ | Council on Environmental Quality |
| CERCLA | Comprehensive Environmental Response, Compensation and Liability Act |
| CFR | Code of Federal Regulations |
| CLSM | controlled low-strength material |
| CO | carbon monoxide |
| D&D | decontamination and decommissioning |
| DBE | design basis event |
| DOE | U.S. Department of Energy |
| DWPF | Defense Waste Processing Facility |
| EIS | environmental impact statement |
| EPA | U.S. Environmental Protection Agency |
| FR | Federal Register |
| HEPA | high-efficiency particulate air (filter) |
| HLW | high-level waste |
| IMNM | Interim Management of Nuclear Material |
| INEEL | Idaho National Engineering and Environmental Laboratory |
| ISO | International Organization for Standardization |
| LCF | latent cancer fatality |
| LEU | low enriched uranium |
| LWC | lost workday cases |
| MCL | maximum contaminant level |

| | |
|------------------|---|
| MEI | maximally exposed (offsite) individual |
| NAAQS | National Ambient Air Quality Standards |
| NAS | National Academy of Sciences |
| NCRP | National Council on Radiation Protection and Measurements |
| NEPA | National Environmental Policy Act |
| NESHAP | National Emission Standards for Hazardous Air Pollutants |
| NO _x | nitrogen oxides |
| NRC | U.S. Nuclear Regulatory Commission |
| O ₃ | ozone |
| OSHA | Occupational Safety and Health Administration |
| PM ₁₀ | particulate matter less than 10 microns in diameter |
| PSD | Prevention of Significant Deterioration |
| ROD | Record of Decision |
| ROI | Region of Influence |
| SCDHEC | South Carolina Department of Health and Environmental Control |
| SO ₂ | sulfur dioxide |
| SRS | Savannah River Site |
| TRC | total recordable cases |
| TSP | total suspended particulates |
| WSRC | Westinghouse Savannah River Company |

Abbreviations for Measurements

| | |
|-----|---|
| cfm | cubic feet per minute |
| cfs | cubic feet per second = 448.8 gallons per minute = 0.02832 cubic meter per second |
| cm | centimeter |
| gpm | gallons per minute |
| kg | kilogram |
| L | liter = 0.2642 gallon |
| lb | pound = 0.4536 kilogram |
| mg | milligram |
| μCi | microcurie |
| μg | microgram |
| pCi | picocurie |
| °C | degrees Celsius = $5/9$ (degrees Fahrenheit – 32) |
| °F | degrees Fahrenheit = $32 + 9/5$ (degrees Celsius) |

Use of Scientific Notation

Very small and very large numbers are sometimes written using “scientific notation” or “E-notation” rather than as decimals or fractions. Both types of notation use exponents to indicate the power of 10 as a multiplier (i.e., 10^n , or the number 10 multiplied by itself “n” times; 10^{-n} , or the reciprocal of the number 10 multiplied by itself “n” times).

For example: $10^3 = 10 \times 10 \times 10 = 1,000$

$$10^{-3} = \frac{1}{10 \times 10 \times 10} = 0.001$$

In scientific notation, large numbers are written as a decimal between 1 and 10 multiplied by the appropriate power of 10:

4,900 is written $4.9 \times 10^3 = 4.9 \times 10 \times 10 \times 10 = 4.9 \times 1,000 = 4,900$

0.049 is written 4.9×10^{-2}

1,490,000 or 1.49 million is written 1.49×10^6

A positive exponent indicates a number larger than or equal to one; a negative exponent indicates a number less than one.

In some cases, a slightly different notation (“E-notation”) is used, where “ $\times 10$ ” is replaced by “E” and the exponent is not superscripted. Using the above examples

$$4,900 = 4.9 \times 10^3 = 4.9\text{E}+03$$

$$0.049 = 4.9 \times 10^{-2} = 4.9\text{E}-02$$

$$1,490,000 = 1.49 \times 10^6 = 1.49\text{E}+06$$

Metric Conversion Chart

| To convert into metric | | | To convert out of metric | | |
|------------------------|---|-----------------|--------------------------|---------------------------------------|--------------|
| If you know | Multiply by | To get | If you know | Multiply by | To get |
| Length | | | | | |
| inches | 2.54 | centimeters | centimeters | 0.3937 | inches |
| feet | 30.48 | centimeters | centimeters | 0.0328 | feet |
| feet | 0.3048 | meters | meters | 3.281 | feet |
| yards | 0.9144 | meters | meters | 1.0936 | yards |
| miles | 1.60934 | kilometers | kilometers | 0.6214 | miles |
| Area | | | | | |
| sq. inches | 6.4516 | sq. centimeters | sq. centimeters | 0.155 | sq. inches |
| sq. feet | 0.092903 | sq. meters | sq. meters | 10.7639 | sq. feet |
| sq. yards | 0.8361 | sq. meters | sq. meters | 1.196 | sq. yards |
| acres | 0.0040469 | sq. kilometers | sq. kilometers | 247.1 | acres |
| sq. miles | 2.58999 | sq. kilometers | sq. kilometers | 0.3861 | sq. miles |
| Volume | | | | | |
| fluid ounces | 29.574 | milliliters | milliliters | 0.0338 | fluid ounces |
| gallons | 3.7854 | liters | liters | 0.26417 | gallons |
| cubic feet | 0.028317 | cubic meters | cubic meters | 35.315 | cubic feet |
| cubic yards | 0.76455 | cubic meters | cubic meters | 1.308 | cubic yards |
| Weight | | | | | |
| ounces | 28.3495 | grams | grams | 0.03527 | ounces |
| pounds | 0.4536 | kilograms | kilograms | 2.2046 | pounds |
| short tons | 0.90718 | metric tons | metric tons | 1.1023 | short tons |
| Temperature | | | | | |
| Fahrenheit | Subtract 32 then multiply by 5/9ths | Celsius | Celsius | Multiply by 9/5ths, then add 32 | Fahrenheit |

Metric Prefixes

| Prefix | Symbol | Multiplication Factor |
|--------|--------|--|
| exa- | E | 1 000 000 000 000 000 000 = 10^{18} |
| peta- | P | 1 000 000 000 000 000 = 10^{15} |
| tera- | T | 1 000 000 000 000 = 10^{12} |
| giga- | G | 1 000 000 000 = 10^9 |
| mega- | M | 1 000 000 = 10^6 |
| kilo- | k | 1 000 = 10^3 |
| centi- | c | 0.01 = 10^{-2} |
| milli- | m | 0.001 = 10^{-3} |
| micro- | μ | 0.000 001 = 10^{-6} |
| nano- | n | 0.000 000 001 = 10^{-9} |
| pico- | p | 0.000 000 000 001 = 10^{-12} |
| femto- | f | 0.000 000 000 000 001 = 10^{-15} |
| atto- | a | 0.000 000 000 000 000 001 = 10^{-18} |